

多相双金属 Pt-Sn/ γ -Al₂O₃ 催化的胺 N-烷基化反应合成仲胺和叔胺

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摘要 基于借氢策略、醇为烷基化试剂的胺的 N-烷基化反应是合成胺类化合物的绿色途径。在无外加氢源条件下, 多相双金属 Pt-Sn/ γ -Al₂O₃ 催化剂可高效催化醇为烷基化试剂的伯(仲)胺的 N-烷基化反应合成仲(叔)胺, 反应副产物为水与极少量亚胺。催化体系的底物适应性好, 目标产物收率高; 催化剂可以循环使用, 具有潜在的工业化应用前景。

关键词: 铂 锡 氧化铝 负载型催化剂 借氢策略 多相催化 N-烷基化 胺 醇

Abstract: N-Alkylation of amines with alcohols through a borrowing hydrogen strategy is a green route to amines. Heterogeneous bimetallic Pt-Sn/ γ -Al₂O₃ catalyzed the reactions of primary (secondary) amines with alcohols in the absence of external hydrogen source, efficiently affording secondary (tertiary) amines with water and a small amount of imines as the by-products. Various functional groups in the substrates were tolerated in the catalytic system. The Pt-Sn/ γ -Al₂O₃ catalyst was easily recycled, suggesting its potential application in the production of secondary and tertiary amines.










Keywords: platinum, tin, alumina, supported catalyst, borrowing hydrogen, heterogeneous catalysis, N-alkylation, amine, alcohol

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